

REMARKS

This paper includes a complete and timely response to the non-final Office Action mailed July 1, 2004 (Paper No. 4). Upon entry of the attached amendments, claims 1 – 28 and 30 – 35 remain pending. Claims 27 and 28 have been amended. Claim 29 has been canceled without prejudice, waiver, or disclaimer. The subject matter in amended claims 27 and 28 is included in Applicant's originally submitted claims. The subject matter of new claims 30 – 35 is also included in Applicant's originally submitted claims. Consequently, no new matter is added to the present application.

Applicant respectfully submits that the now pending claims 1 – 28 and 30 – 35 are patentable over the cited art of record. Accordingly, reconsideration and allowance of the application and presently pending claims are respectfully requested.

Each rejection presented in the non-final Office Action mailed July 1, 2004 is discussed in the following remarks.

I. Allowable Subject Matter

Applicant thanks the Examiner for indicating that Applicant's original claims 1 – 13 and 24 – 26 are allowed. The Applicant further thanks the Examiner for indicating that Applicant's claims 21 – 23 and 28 would be allowable if amended in independent form including all the limitations of the independent claims and any intervening dependent claims.

II. Claim Rejections under 35 U.S.C. §102 - Claims 14 – 20 and 27

A. Statement of the Rejection

The Office Action indicates that claims 14 – 20 presently stand rejected under 35 U.S.C. §102(e) as allegedly being anticipated by Mancuso *et al.* (U.S. Patent No. 6,285,801), hereafter "*Mancuso*."

The Office Action further indicates that claim 27 presently stands rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Lakshminarayanan *et al.* (U.S. Patent No. 5,933,540), hereafter "*Lakshminarayanan*."

B. Discussion of the Rejection

Applicant respectfully submits that independent claims 14, 20, and 27 are patentable for at least the reason that the respective cited references fail to disclose, teach, or suggest each feature in the amended claims.

It is well established that “anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration.” *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 Fed 2d 1540, 220 U.S.P.Q. 303, 313 (Fed Cir 1983). The cited references fail to meet the requirement of a single prior art reference that discloses, teaches, or suggests each feature of the claimed invention.

1. Claims 14 - 19

Claim 14 is exemplary. For convenience of analysis, Applicant’s independent claim 14 is repeated below in its entirety.

14. An image processing system suited for post-processing compressed and decompressed images, the system comprising:

means for analyzing data associated with a plurality of picture elements comprising at least one image frame to identify portions of the at least one image frame that contain image artifacts;

means for smoothing at least one data value associated with the plurality of picture elements in the identified sub-portion of the at least one image frame; and

means for assembling an image artifact reduced image comprising smoothed picture elements.

(Applicant’s amended independent claim 14 - *emphasis added*.)

The cited art of record fails to disclose, teach, or suggest at least the emphasized feature of pending claim 14 as shown above. Consequently, claim 14 is allowable.

In this regard the Office Action alleges that *Mancuso* column 3, lines 15 – 18 and column 4, lines 4 – 12 discloses a means for smoothing.

Applicant acknowledges that column 3, lines 15 – 18 includes the term “smoothing.” However, “smoothing” as described by *Mancuso* is an operation that “compensates for the enhanced noise caused by taking derivatives of the pixels.” Thus, *Mancuso*’s “smoothing” operation removes noise introduced by taking derivatives of pixels.

In contrast with *Mancuso*, Applicant’s means for smoothing as described in claim 14 is directed to at least one data value associated with the plurality of picture elements.

Applicant's means for smoothing at least one data value is responsive to processing operations that do not include taking derivatives of pixels. Accordingly, Applicant's means for smoothing at least one data value is not anticipated by *Mancuso*. Accordingly, Applicant submits independent claim 14 is allowable over *Mancuso* and respectfully requests that the rejection of claim 14 be withdrawn.

Because independent claim 14 is allowable, dependent claims 15 – 19, which depend either directly or indirectly from claim 14, are also allowable. *See In re Fine*, 837, F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Accordingly, Applicant respectfully requests that the rejection of claims 14 – 19 be withdrawn.

2. Claim 20

For convenience of analysis, Applicant's independent claim 20 is repeated below in its entirety.

20. A method for reducing image artifacts in a compressed and decompressed image, comprising:
receiving picture element data associated with at least one image frame;
segmenting the at least one image frame into a plurality of regions in accordance with a first viewer selected imaging parameter;
analyzing the plurality of segmented regions to identify regions that contain an image artifact in response to a second viewer selected imaging parameter;
processing the identified regions with an adaptive filter such that at least one picture element data parameter is adjusted in response to both a third and a fourth viewer selected imaging parameters; and
inserting adjusted picture element data values into the at least one image frame.

(Applicant's amended independent claim 20 – *emphasis added*.)

The cited art of record fails to disclose, teach, or suggest at least the emphasized feature of pending claim 20 as shown above. Consequently, claim 20 is allowable.

The Office Action alleges that *Mancuso*, column 3, lines 15 – 18 and column 4, lines 13 – 41, discloses processing the identified regions with an adaptive filter such that at least one picture element data parameter is adjusted in response to both a third and a fourth viewer selected imaging parameters. Applicant disagrees.

The cited portions of *Mancuso* fail to disclose, teach, or suggest an adaptive filter responsive to four viewer selected imaging parameters. *Mancuso* apparently describes a method of processing picture elements within variably sized processing windows. The variably sized processing windows are defined by a horizontal length in picture elements and a vertical height in picture elements. Consequently, Applicant respectfully submits that the cited portions of *Mancuso* appear to teach first and second imaging parameters (*i.e.*, horizontal length and vertical length). No other viewer selected imaging parameters are disclosed.

In contrast with *Mancuso*, Applicant's method for reducing image artifacts in a compressed and decompressed image comprises "processing the identified regions with an adaptive filter such that at least one picture element data parameter is adjusted in response to both a third and a fourth viewer selected imaging parameters." Accordingly, Applicant's method is not anticipated by *Mancuso* for at least the reason that *Mancuso* fails to disclose a filter that is responsive to four viewer selected imaging parameters. Accordingly, Applicant submits independent claim 20 is allowable over *Mancuso* and respectfully requests that the rejection of claim 20 be withdrawn.

3. Claim 27

For convenience of analysis, Applicant's independent claim 27, as amended, is repeated below in its entirety.

27. A method for identifying image artifacts introduced in a compressed and decompressed sub-region of an image, comprising:

performing at least one statistical test over a plurality of picture element data values comprising the sub-region to generate a test result;

determining a maximum picture element data value for the sub-region; and

determining when the absolute value of the difference between the maximum picture element data value and the test result exceeds a predetermined threshold.

(Applicant's amended independent claim 27 - *emphasis added*.)

The cited art of record fails to disclose, teach, or suggest at least the emphasized feature of pending claim 27 as shown above. Consequently, claim 27 is allowable.

Specifically, the cited reference fails to disclose, teach, or suggest Applicant's method for identifying image artifacts introduced in a compressed and decompressed sub-region of an image for at least the reason that the cited reference is silent regarding "***determining when the absolute value of the difference between the maximum picture element data value and the test result exceeds a predetermined threshold.***" The statistical noise determination mechanism apparently disclosed from column 8, line 55 to column 10, line 7 of *Lakshminarayanan* does not describe a function that includes the absolute value of the difference between a maximum picture element data value and a statistical test result. Consequently, *Lakshminarayanan* cannot anticipate Applicant's independent claim 27. Accordingly, Applicant respectfully requests that the rejection of claim 27 be withdrawn.

Concerning Applicant's dependent claim 28, the cited art of record fails to disclose, teach, or suggest at least the feature of "determining when the absolute value of the difference between the minimum picture element data value and the test result exceeds a predetermined threshold." The statistical noise determination mechanism apparently disclosed from column 8, line 55 to column 10, line 7 of *Lakshminarayanan* does not describe a function that includes the absolute value of the difference between a minimum picture element data value and a statistical test result. Consequently, *Lakshminarayanan* cannot anticipate Applicant's dependent claim 28. Accordingly, Applicant respectfully requests that the rejection of claim 28 be withdrawn.

III. New Claims 30 - 35

The subject matter of new claims 30 – 35 is patentable over the prior art of record for at least the reason that the prior art references fail to disclose, teach, or suggest each feature recited in the claims.

IV. Prior Art Made of Record

The prior art made of record has been considered, but is not believed to affect the patentability of the presently pending claims.

CONCLUSION

In summary, Applicant respectfully requests that all outstanding claim rejections be withdrawn. Applicant respectfully submits that all pending claims 1 – 28 and 30 - 35 are allowable over the cited art and the present application is in condition for allowance. Accordingly, a Notice of Allowance is respectfully solicited. Should the Examiner have any comment regarding the Applicant's response or believe that a teleconference would expedite prosecution of the pending claims, Applicant requests that the Examiner telephone Applicant's undersigned attorney.

Respectfully submitted,

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